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15 November 1982

China Report

SCIENCE AND TECHNOLOGY

No. 180



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15 November 1982

CHINA REPORT

SCIENCE AND TECHNOLOGY

No. 180

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APPLIED SCIENCES

INVENTIONS APPROVED BY SCIENTIFIC COMMISSION

OW231004 Beijing XINHUA Domestic Service in Chinese 1136 GMT 21 Oct 82

[Summary] Beijing, 21 Oct (XINHUA)--Recently the inventions evaluation committee of the State Scientific and Technological Commission has approved a number of inventions, including the following:

Technique for growing large acreage of rubber trees between 18 and 24 degrees north latitude;

3L- and RJ-series emulsified explosive;

WH 122 artillery shell;

New-type anti-aircraft machine gun;

Molding technique for silicon rubber larynx for laryngocarcinoma patients after surgery;

Acid-resistant steel and welding rod which can stand high temperature and sulfuric acid of moderate concentration;

Nickel-base high-temperature alloy;

No 710 steel for making thin-wall pipes;

Device for simulated detonation of mortars;

Model LD-3 electric detonator;

Powerful rotary and contrarotary tracking device [qiang li xuan ya fan xuan gen zong zhuang zhi 1730 0500 2467 1090 0646 2467 6418 9338 5944 4999];

Quick-loading cartridge [kuai zhuang dan gu 1816 5944 1734 7849];

Method of controlling nematode disease for tussah silkworms;

New process for growing large fine-quality single crystals of alpha lithium iodate;

Production process for nucleotide for medical use by using penicillium mycelium;

Anti-oxidation lead welder;

Allo-1, allo-2 and allo-3 catalysts for synthesis of ammonia;

New F-hpam water sealant for oil wells;

GY-340 anaerobic room-temperature quick-hardening adhesive and the related GC-1 catalyst; and

Experiment for simulated air drop of dirty bomb detonators [ang dang yin xin kong tou mo ni shi yan 7542 1734 1714 0207 4500 2121 2875 2362 6107 7526].

CSO: 4008/11

APPLIED SCIENCES

BRIEFS

ZHEJIANG IMPORTED TECHNOLOGY--In the past 8 months and more, Zhejiang Province has imported 37 technologies, using foreign capital and loans totaling U.S.\$18 million, for technical transformation in 31 small and medium-sized enterprises. These technologies, for use in the plastics industry, tannery, silk printing and dyeing, garment processing, electronics, meters industry and furniture making, are advanced from the 1970's level. [Hangzhou Zhejiang Provincial Service in Mandarin 1030 GMT 13 Oct 82 OW]

TEXTILE SCIENCE, TECHNOLOGY--The national conference on scientific and technological work in the textile industry was held in Jiangsu's Nantong Municipality from 13 to 19 October, attended by more than 100 leading comrades of textile industrial departments and scientists and technicians from 28 provinces, municipalities and autonomous regions. The meeting summarized the experience gained in scientific and technological work in China's textile industry in the past 2 years and studied and formulated plans for 1983. The participants felt that, in the guiding thought for developing the textile industry, the stress should be switched from speed, output and production capacity to variety, quality, economic results and technical transformation. He Zhengzhang, vice minister of textile industry, attended and addressed the meeting. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 19 Oct 82 OW]

PRC, EEC PLASTICS SEMINAR--Beijing, 22 Oct (XINHUA)--A symposium on exchange of technology in plastics processing organized by the China Council for the Promotion of International Trade and the European Economic Community (EEC) was held in Beijing between October 18 and 22. A nine-member delegation from the EEC and 150 Chinese experts and technicians from light industrial and machinery departments discussed processing techniques in the plastics industry. This is the first time the EEC has sent a technical delegation to China. This visit will enhance technical interchange and economic and trade relations between China and the community, according to sources at the symposium. The EEC delegation arrived in Beijing on October 15. They will also visit Tianjin and discuss technological exchange there. [Text] [OW221303 Beijing XINHUA in English 1240 GMT 22 Oct 82]

BRIDGE ENGINEERING BOOK--Beijing, 17 Oct (XINHUA)--Recently the science popularization publishing house has published volume 1 of the "Selected Science Popularization Works by Mao Yisheng." Mao Yisheng, now 87, is a celebrated Chinese expert in bridge construction. This book predominantly contains articles which have been published since liberation. In these articles, the writer explains the basic of bridge construction in an interesting and yet easy-to-understand way and points out the role of Chinese bridges in world architectural history. [Beijing XINHUA Domestic Service in Chinese 0012 GMT 17 Oct 82 OW]

GROUND SURVEYING SYSTEM--Beijing, 21 Sep (XINHUA)--For the first time in the world, a full-scale balance [zheng ti ping cha 2419 7555 1627 1567] for a ground surveying control system has been completed in China. Geographical coordinates of over 50,000 surveying points have been precisely calculated and a new, independent and highly precise system of ground coordinates has been established. The precision of surveying and drawing work is of great importance to the development of national economy and national defense projects, as well as science and technology. With the development of economic construction and national defense construction, the demand for precision in geographical coordinates has become greater and greater. In this connection, full-scale balancing is conducted so that the influence caused by errors in surveying work can be reduced to the minimum. Since 1978, tens of thousands of scientific personnel from the State Bureau of surveying and cartography, the surveying and drawing department under the PLA general staff department and other departments concerned have been engaged in this arduous work. [Beijing XINHUA Domestic Service in Chinese 0251 GMT 21 Sep 82 OW]

GEOLOGICAL SYMPOSIUM--Nanjing, 25 Oct (XINHUA)--More than 150 Chinese and foreign geologists will begin a two-week discussion in Nanjing, capital of Jiangsu Province, of questions relating to geology of granites--a branch of science that is of great importance to the exploitation of mineral resources and the study of the formation of the continental crust. The symposium will be sponsored by Nanjing University, one of China's major institutions of higher learning, whose scientists have surveyed and studied granites over areas totaling more than 200,000 square kilometers in south China. Good results were achieved when granite geological theories developed by Nanjing University scientists were used to guide the prospecting for minerals. For this, said Professor Xu Keqin, a prominent Chinese geologist and member of the Chinese Academy of Sciences, the university was given a national natural science award, second grade. This is the first time that a Chinese university will sponsor an international science symposium. Chappell Bruce of Australia, Didier Jean of France, Augustithis Stylianos-Sarvas of Greece and other internationally prestigious geologists will attend the symposium and deliver academic papers. [Text] [OW251354 Beijing XINHUA in English 1256 GMT 25 Oct 82]

GEOGRAVITY RESEARCH--Wuha, 13 Oct (XINHUA)--China has established a complete system for absolute and relative geogravity monitoring, taking it well along the way toward advanced world levels, according to scientists who participated in a recent geophysics symposium held here. Among other things, the system will enable scientists to revise the orbits of satellites and booster rockets and survey China's oil and metal mineral resources. It is also expected to be of use in metallurgy, surveying, marine science, earthquake prediction and space science. A number of studies on solitons and their application in China are quite advanced, according to papers read at the symposium. China has made significant progress in the study of both geogravity and solitons, in the manufacture of geogravity instruments and meters and geogravity observation technology. Several domestically manufactured meters have attained fairly high technological levels, including a distance-measuring constant-temperature gravity meter, a marine gravity meter, a tidal gravity meter and a precision absolute gravity meter. [Beijing XINHUA in English 0703 GMT 13 Oct 82 OW]

CSO: 4010/10

LIFE SCIENCES

USE OF RADIOACTIVE NUCLIDES TO SHOW LYMPH SYSTEM NOTED

Beijing JIANKANG BAO in Chinese 15 Aug 82 p 3

[Article by Zhang Zongmei [1728 1350 5019]]

[Text] The lymph system is one of the important systems of the body, forming a natural pathway for the spread of tumors. Therefore, it has an important function in the process of the development of tumors. At present, there are not many techniques of examining the lymph system outside of the body [extracorporeally]. Although x-ray lymphography has a relatively high resolution factor, it is only suitable for finding the anatomical position of lymphatic ducts when it is used on the body surface. Radiolymphography is a simple, safe, and harmless technique of examination for the understanding of the shape of the lymphatic ducts and their physiological and pathological changes, from outside the body. Xie'erman [transliteration] began in the fifties to inject the radioactive nuclide ^{193}Au gel into spaces of tissues to study the way of producing radiolymphography. Since then, some domestic and foreign scientists have devoted themselves to this research and obtained some definite achievements.

Through studies in recent years, using radiolymphography on the side of the chest bone of patients with breast cancer it is believed that the lymph nodes on the side of the chest bone may possibly be a more direct path of metastasis of breast cancer. Due to the fact that there is not yet a routine technique of examining the lymph node on the side of the chest bone, the radiolymphography is a simple and convenient technique, enabling the spread of tumor at that locality to be discerned relatively early. The technique has a definite clinical value for distinguishing the stage of breast cancer, selecting a treatment program, determining the area for radiotherapy, the effect of treatment, and the follow-up prognosis.

After a radioactive gel of a suitable physical property is injected in the space of tissues, the grains of the gel can infiltrate the lymphatic capillaries to flow into a part of the lymph node and to move with the lymph toward the heart, and in every step on the way it is picked up by the lymph nodes. Within a suitable period after it is injected, scanning or x-ray photography may proceed and the radiolymphogram may be obtained. The key to the quality of the lymphogram is the diameter of the grain of the display agent. It is generally believed that the grain size of 1-10 μm is the most suitable. In [1976] Ege [transliteration] first reported the use of the isotope technetium antimony sulfide for

display of lymph node inside the breast. After satisfactory results were obtained with this technique, it has been gradually adopted at present as the best lymph x-ray photography agent in foreign countries.

The Isotope Laboratory of the Beijing Municipal Research Institute of Tumor Prevention and Control cooperated with the Beijing Research Institute of Atomic Energy to succeed in making the antimony sulfide gel and in 1980 the isotope technetium antimony sulfide gel was also successfully made. The grain size is suitable (4-12 μ) and the labeling rate is above 95 percent. Animal experiments have proved that this product has a high degree of concentration in the lymph nodes and it has also been certified to be safe, germfree, and heat free. In October 1980, it was clinically tested in the examination of 168 patients. The lymphograms were clear and comparable with the small grain ^{193}Au gel. It can also be frequently repeated. The person being examined suffered no pain and there was not a single case of an unfavorable reaction.

Results of clinical tests indicate that the isotope technetium antimony sulfide gel, as the best nuclide lymphographic agent, has the following merits:

The isotope technetium labeled antimony sulfide prefabricated gel has small and even grains, with 76.1 percent having a diameter of 6-10 μ , the most suitable size to be picked up by lymph nodes. The behavior of the antimony sulfide gel in the body is stable; therefore, the pick-up rate by the lymph system is high, the picture clear and beautiful.

The physical properties of the isotope technetium are relatively good to make it suitable for scanning and γ photography. The resolution factor is high, the physical half-life is short, and only a single-low energy γ ray is released. The radiation dosage of the lymph node is only 0.4 rad/m Ci, amounting to only 1/100 of that of ^{193}Au .

The method of preparation is simple and the product reaches the standard of isotope technetium antimony sulfide made in foreign countries.

In a word, the best nuclide lymphographic display agent--isotope technetium antimony sulfide has been successfully made in China to provide a favorable condition for the prevention and control of tumors. This is a welcome achievement of China's nuclear medicine.

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CSO: 4008/2

LIFE SCIENCES

ADOPT SCIENTIFIC ATTITUDE IN PUBLICIZING SCIENTIFIC ACHIEVEMENTS

Beijing RENMIN RIBAO in Chinese 21 Sep 82 p 3

[Article by Wu Jieping [0702 7132 1627]]

[Text] The number of newspaper and magazine reports and articles about achievements in medical science have been increasing in recent years. They are welcomed by the masses and have exerted a positive influence in popularizing the scientific knowledge of medicine to mobilize the active participation of the masses in the work of prevention and control of diseases. It also should be pointed out that some newspaper articles do not have such an influence, however. On the contrary, they create wrong impressions and confusion.

I, as a medical professional, have often encountered sudden requests from patients and their families to stop the originally effective treatment and to apply a certain new drug or new method. The reason for a request of this kind is that they have read some related reports, which do not introduce the real condition but instead emphasize the results in a general manner. They do not talk about the area of application. Or, they may speak of items that are still in the process of research and investigation as operational techniques, or even regard something that has no scientific foundation whatsoever as the magic of all magics. For difficult to treat diseases such as malignant tumor, if the newspapers reports are not factual the result can be even more serious. After reading such reports, some patients refuse to accept the original treatment. They take old and young, at a tremendous expense and run to the doctor or hospital reported in the newspaper article. As a result, the patient's disease is aggravated by the exhaustion of running around while the hospital in the report also suffers from hardship. Similar conditions have also occurred when foreign newspapers report about medical achievements. For example, one newspaper published news of a foreign medical achievement, with the headline: "Wonderful Tidings for Disease Long Suspected To Be Incurable." The article stated that a foreign medical scientist had clarified the pathogenesis of Parkinson's disease which had long been regarded as incurable, and developed a new specially effective drug for it. In reality, this new drug is still in an experimental stage and has not been clinically applied. Three months or so later, that newspaper published another news item, saying that many readers all over the country had written to the newspaper, as well as to the foreign professor mentioned in the previous article. The professor asked the newspaper to tell the readers that "The new treatment technique is still in the experimental stage and it will be at least 5 more years before its clinical application." This is the sort of

condition created by reporting something without understanding the true condition and without considering the after effect of a newspaper report.

There was a period of time when I received many letters asking me to help change the sex of the writer. This was caused by a newspaper article concerning my treating patients of serious external genital abnormalities (the so-called male-female persons). The article did not state clearly that while some of these persons can determine their true sex by having the abnormality corrected, it is not true that a normal person can change his or her sex at random. Just about that time, another publication produced an excerpt of a translation of a foreign report, headlined as "Sex Reconstruction School in England." The paper in fact dealt with a specialty of treating male-female patients. This erroneous headline further intensified the misunderstanding of some readers. All the troubles of physicians who have to explain to their patients why a certain treatment technique is not suitable for them will never be known. These physicians are often never understood by patients and their families, and sometimes they are accused of being too conservative.

Many achievements in medical research are products of cooperative efforts, contributions of a collective body. If the newspaper report improperly emphasizes the function of one particular individual, the solidarity and cooperation of scientists and technicians will be dealt an unfavorable blow. The conflicts among some scientists or organizations are related to some less than true newspaper reporting. In such columns as "Personal Interviews" exaggerations must be avoided. Titles like the "founder of..." must not be hastily used before the truth is learned through serious investigation. In an article about my medical research work, a newspaper flashed the headline saying that I was the one who established the foundation of urosurgery in China. This claim is not in keeping with the facts. I did do some work in the development of urosurgery in New China, but specialists of urosurgery of our country's older generation had made accomplishments and several of them are still living. Their contribution in nurturing many specialists, including me, is very considerable. It was only after my request that that newspaper published a letter of mine [to correct the original error.]

Whenever a newspaper publishes articles of an informative and interesting nature, a scientific attitude must take precedence and the news must also be of some practical value. Some errors in the reports may be related to a deficiency in spiritual cultivation on the part of some scientists and technicians themselves, but some errors are in fact the doings of the reporters and editors. I believe science should be reported with a strict scientific attitude, emphasizing the truth. Opinions of special departments and related persons should be consulted and there should be full consideration of possible results of the publication. Medicine is an applied science. It is intimately related to everybody's health. When a reader reads about a method capable of helping him or her resolve the problem of his or her own disease it is only natural that he or she should pursue it in every possible way; therefore, this type of report requires extra caution.

I hope I am able to arouse the attention of authors, reporters, editors, and readers to this problem.

The opinion of Comrade Wu Jieping is worthy of the attention of our editors, reporters, and some writers. Scientific accuracy is one of the basic requirements of science and technology reporting. Our people trust newspapers very much and reports of science and technology must be highly responsible to the people and a scientific and serious attitude must be adopted. This paper is willing to join other publications in a common effort to avoid errors in reporting science and technology. Once an error is discovered it will be corrected in a timely fashion. We hope for the support and counsel of the readers and the specialists of all fields.--the Editor--

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CSO: 4008/2

LIFE SCIENCES

BRIEFS

MORPHINE DISCOVERY AWARD--Beijing, 31 Aug (XINHUA)--Two Chinese scientists have determined and isolated analgesic mechanism of morphine, winning a national science award, according to an official of the State Scientific and Technological Commission. Zou Gang and Zhang Changshao, researchers of the Shanghai Institute of Materia Medica of the Chinese Academy of Sciences, have found that the sphere of action of morphine is the grey matter around the third ventricles and aqueduct of the brain. Through the action on the sphere, morphine indirectly acts on other parts of the central nervous system to ease pain. In recent years, Zou Gang and his associates have compared the analgesic mechanism of morphine to acupuncture analgesia demonstrating that acupuncture accelerates the release and synthesis of morphine peptides of the brain, thus playing an analgesic role. [Beijing XINHUA in English 1247 GMT 31 Aug 82 OW]

CSO: 4010/14

SCIENTISTS AND SCIENTIFIC ORGANIZATIONS

SCIENCE FUND FINANCES RESEARCH PROJECTS

OW161144 Beijing XINHUA in English 0722 GMT 16 Oct 82

[Text] Beijing, 16 Oct (XINHUA)--A committee of the science fund of the Chinese Academy of Sciences, meeting at a conference here yesterday, approved financing projects to draw up highly detailed charts on China's soil, vegetation, land resources, land utilization, land types, geomorphology and grasslands.

Committee sources said that each chart, drawn at a scale of 1 : 1,000,000, would involve participation of dozens of work units, as well as the efforts of well over a hundred scientists across the country.

"It is of great significance to the understanding of China's natural resources, their opening and the mapping of production plans," one source on the committee told XINHUA.

The conference of the science fund committee, which began on October 14, discussed research projects that call for an allocation of more than 100,000 yuan, along with a revision of operational procedures for the fund and its work for next year.

By the end of September the committee had received a total of 1,361 applications for the year 1982. The applicants are from 211 institutes, of which 106 operate under universities and colleges.

Beginning in May this year, the science divisions of the Chinese Academy of Sciences have organized scientists to discuss, appraise and judge the applications. To date, 419 projects have been approved, of which 114 involve physics and mathematics, 94 chemistry, 98 biology, 27 earth sciences and 86 technical sciences.

In assessing the applications, the science fund committee acts in a democratic way: those projects that are of scientific and practical significance, have clear academic ideas and feasible and rational technological plans and are expected to yield results in a comparatively short period of time win active assistance. Attention has been paid to supporting middle-aged and young scientists and scientists in the border regions to promote the development of science in the remote areas and the growth of scientific talents.

CSO: 4010/9

AUTHOR: GUO Juming [0948 1565 2494]
YUAN Faxiang [5913 4099 4382]
KANG Zhenxi [1660 2182 0823]

ORG: All of Xining Research Institute of Plateau Machines and Electricity

TITLE: "Power Recovery Tests of the Turbocharged Jiefang CA10B Model Trucks at Plateau Regions"

SOURCE: Changchun QICHE JISHU [AUTOMOBILE TECHNOLOGY] in Chinese No 8, 25 Aug 82
pp 2-7

ABSTRACT: The Jiefang CA10B trucks are the major transportation tool in the Qinghai-Xizang Plateau region. Due to the high altitude and low atmospheric pressure of the region, the power and the torque of the engine are reduced to cause the fuel consumption to increase. In 1980-81, the authors studied and experimented with the exhaust turbocharge technique and succeeded in obtaining a maximum power of 95 hp and a minimum oil consumption of 250 g/hp-hr to provide an effective means of reconstructing Jiefang trucks and other similar automobiles to improve their transport efficiency and to reduce fuel consumption. The supercharger used in the tests is the 3GJ-1 II, manufactured by Wuxi Motive Power Machine Plant. Technical and fuel consumption data of the truck before and after the modification are reported in some detail.

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CSO: 4009/20

AUTHOR: YUE Zhonglu [1971 6988 4389]

ORG: None

TITLE: "Brief News of Certification of the Prototype of the Moveable Belt Type Conveyor Series"

SOURCE: Beijing QIZHONG YUNSHU JIXIE [HOISTS AND CONVEYANCES] in Chinese No 8, 6 Aug 82 p 64

ABSTRACT: The Bureau of Heavy Mining Machinery of the Ministry of Machine Industry called a conference in Hangzhou on 21-24 May 82 for the certification of the DY series of moveable belt type conveyers. The Research Institute of Hoist and Conveyance Machinery has been responsible for designing the conveyor with the participation of Hangzhou Conveyance Equipment Plant, which also made the prototype. The conveyor belt is 500mm in width; the machine is 15 m in length, with a variable angle of inclination. Participants to the technical certification conference of this DY5015 conveyor included 47 delegates representing 27 organizations engaged in designing, scientific research, manufacture, and machinery utilization. The delegates believed that compared with conveyers of the old, this machine moves more easily, is capable of moving horizontally, consumes less energy to move up and down, has little noise, is stable, and moves reliably. All agreed that its major properties have met the requirements of the design and its parameters and properties have reached the domestic advanced level. The delegates suggested that related departments start official production of this new product.

6168

CSO: 4009/16

Engineering

AUTHOR: TONG Linsu [4547 2651 1121]
QIU Mulan [8002 2606 5695]
XU Yixian [6079 0076 0341]

ORG: All of the Nanjing Institute of Technology

TITLE: "Theoretical Study of Rotationally Symmetrical Electron Emission Systems"

SOURCE: Nanjing NANJING GONGXUEYUAN [JOURNAL OF NANJING INSTITUTE OF TECHNOLOGY]
in Chinese No 3, 1982 pp 164-180

TEXT OF ENGLISH ABSTRACT: The effects of space charge and thermal velocity are taken into account, and the Monte Carlo Method (MCM) is proposed to deal with the rotationally symmetrical electron emission systems in cathode ray tubes. This method can be advantageously used for computing electron emission systems with fully considered factors, especially the inherent discrete property of the electron to be considered; a direct view model; the simple program structure, and its high accuracy. It takes a rotationally symmetrical system as an example for discussing the main steps for computing electron emission systems by means of MCM, especially using random numbers to take samples from the initial electron energy distribution, and particularly discussing the direct cosine and azimuthal angle.

[Continuation of NANJING GONGXUEYUAN No 3, 1982 pp 163-180]

Finally, several practical computation examples are given. The planar diode is calculated by means of MCM and compared with the analytical solution. The relative error is 0.8 percent. In comparison with the experimental value of the experimental standard diode, the relative error is 8 percent. Calculations are further given for the cross-over gun and laminar flow gun, and their performances are compared from the viewpoint of current density and energy distribution. It indicates that in the case of unmodulation or modulation under which the laminarity of the electron beam has not deteriorated, the laminar flow gun seems to be better than the cross-over gun.

AUTHOR: ZHANG Mingde [1728 2494 1795]
WANG Zuming [3769 4371 2494]
YANG Xianglin [2799 4382 2651]

ORG: All of Nanjing Institute of Technology

TITLE: "Optimal Control of the Microwave Field Distribution at the Interaction Region of the Gyromonotron"

SOURCE: Nanjing NANJING GONGXUEYUAN [JOURNAL OF NANJING INSTITUTE OF TECHNOLOGY]
in Chinese No 3, 1982 pp 181-193

TEXT OF ENGLISH ABSTRACT: In this paper, the requirements for the longitudinal distribution of the microwave field in order to optimize the efficiency of the gyromonotron are studied. Starting from the equation of relativistic particle dynamics, under the guidance of the optimum control theory, the state equations, conjugate equations and objective function and its gradient are derived in detail, which are necessary for optimizing the interaction process in the gyrotron. The computation program is compiled and the optimal longitudinal field distribution in the gyromonotron is computed.

9717

CSO: 4009/15

Identification of Molds

AUTHOR: LU Weiduo [6424 4850 1122]
ZHENG Guoyu [6774 0948 6877]
LIU Zili [0491 5261 0500]
WANG Yongsheng [3769 7167 3932]

ORG: LU, ZHENG of Department of Biology, Lanzhou University; LIU, WANG of Central Station, Northwest Meat, Eggs, and Food Biological Inspection Research

TITLE: "Isolation and Identification of Molds in Cold Storage of Lanzhou Prefecture:

SOURCE: Lanzhou IANZHOU DAXUE XUEBAO-ZIRAN KEXUE BAN [IANZHOU UNIVERSITY BULLETIN (Natural Sciences Edition)] in Chinese No 3, 28 Sep 82 pp 90-102

ABSTRACT: From the cold storage of Lanzhou, 32 strains of molds have been cultured, isolated, and identified. They belong to 2 orders, 4 families, and 7 genera, with *Penicillium* the dominant genus, having 18 strains, amounting to 56.25 percent of the total of 32 strains. The next numerous genus is *Aspergillus*, having 5 strains. Ever since the discovery of *Aspergillus flavus* toxin in turkeys in England in 1960, molds in foods have attracted attention in many countries. With the development of animal husbandry and cold storage industry in China, problems of mold contamination of meat and eggs in cold storage have been discovered many times. The authors plan to start from isolation and identification to determine the types, the toxin, and the damage from molds to eventually proceed with studies on mold prevention and elimination. This paper is a preliminary report of the first part of the research project. This paper was received for publication in Apr 82.

6248

CSO: 4009/24

Measurement Device

AUTHOR: None

ORG: None

TITLE: "Small Thrust Movement-controlled Engine Thrust Measurement Device Approved Through Technical Certification"

SOURCE: Dalian DALIAN GONGXUEYUAN XUEBAO [JOURNAL OF DALIAN INSTITUTE OF TECHNOLOGY] in Chinese No 3, Sep 82 p 74

ABSTRACT: In 1977, a paper of B.C. Barber of England reported the use of complex electronic computation circuit and reverse transfer function lines to measure signal distortion and the signal after compensation to test the thrust of a large engine of a satellite in motion. The Piezoelectric Gauging Research Group of the Department of Machinery, of Dalian Institute of Technology proposed a piezoelectric type no displacement force measurement formula to obtain the dynamic thrust without any complicated circuits or any compensation. The device was twice successfully tested in Mar 81 and Apr 82 on the movement-controlled engine of the satellite Tianwen No 1. On 3-5 Jun, a certification conference was called; the 11 specialists and researchers representing agencies of Chinese Academy of Sciences and the Ministry of Space Navigation Industry attended. According to the opinion of the certification conference, the force measurement technical specifications of the device generally correspond with the level of the middle 70's in Europe, when they are compared with related foreign data.

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CSO: 4009/27

AUTHOR: LI Zhijiu [2621 1807 1432]

ORG: None

TITLE: "Portable Acidimeter Testing Instrument Successfully Made"

SOURCE: Beijing JILIANG JISHU [MEASUREMENT TECHNIQUE] in Chinese No 5, 18 Sep 82
p 63

ABSTRACT: The SJY-1 portable acidimeter testing instrument, successfully made by the Nanning Municipal Measurement Management Center of Guangxi Province has, most recently, undergone technical certification. This instrument is designed for physical chemical measurement technicians to test the accuracy of an acidimeter on site when they are working either at a factory or in the countryside, even though the temperature and the voltage of the electric power source of the work site may fluctuate a great deal. At present, the instrument is being manufactured in small batches according to the needs of related organizations.

AUTHOR: None

ORG: Hot Work Division, Chinese Research Academy of Metrology

TITLE: "Explanation of Front-Cover Photo"

SOURCE: Beijing JILIANG JISHU [MEASUREMENT TECHNIQUE] in Chinese No 5, 18 Sep 82
p 63

ABSTRACT: The photo on the front-cover of this issue of the journal depicts the argon three-phase point reappearance device, which is made by the Chinese Research Academy of Metrology. The research on the device began in 1978, and the finished product was certified by the State in May 82. Its short term reappearance property is $\pm 0.19\text{mk}$ and its credibility is 99 percent. It has an automatic pressure control system using liquid nitrogen for the constant temperature tank. The successful production of this device may be considered as timely preparation for the extension of the new international applied temperature standard in China. The electrical testing meter in the device is the UJ-42 potentiometer made by Shanghai Electrical Meter Plant.

6168

CSO: 4009/17

Mining, Metallurgy

AUTHOR: ZHONG Qiyu [6988 0796 1946]
ZHAO Tiancong [6932 1131 1783]
HE Fuxu [0149 4395 3563]

ORG: All of the Department of Nonferrous Metallurgy, Central-south Institute of Mining and Metallurgy

TITLE: "A Study of Comprehensive Utilization of Polymetallic Sulfide Concentrates--The Leaching of Qibaoshan Polymetallic Pyritic Sulfide Concentrate by Chloride Solution"

SOURCE: Changsha ZHONGNAN KUANGYE XUEYUAN XUEBAO [JOURNAL OF CENTRAL-SOUTH INSTITUTE OF MINING AND METALLURGY] in Chinese No 3, 1982 p 23

TEXT OF ENGLISH ABSTRACT: A series of leaching experiments was carried out for Qibaoshan polymetallic pyritic sulfide concentrate by using chloride solutions. Lixiviants of various compositions were used, and the leaching effects and potential changes of solution were compared. Test results showed that the lixiviants containing cupric ions were particularly applicable to leaching zinc-bearing complex sulfide concentrates. In two-stage counter-current leaching with $\text{CuCl}_2 + \text{FeCl}_3$ solution, the extraction rate of most metals was above 95 percent. The results obtained were discussed.

AUTHOR: ZHANG Zengrong [1728 2582 2837]

ORG: Department of Geology, Central-south Institute of Mining and Metallurgy

TITLE: "The Characteristics of Microstructures and C-axis Fabric of Quartz in a Ductile Shear Zone at Yongning Region, Yangchun County, Guangdong"

SOURCE: Changsha ZHONGNAN KUANGYE XUEYUAN XUEBAO [JOURNAL OF CENTRAL-SOUTH INSTITUTE OF MINING AND METALLURGY] in Chinese No 3, 1982 p 38

TEXT OF ENGLISH ABSTRACT: The quartz microstructures developed in the migmatite ductile shear zone resulted from low temperature creep deformation at Yongning Region, Yangchun County, Guangdong. The C-axis fabric formed a small circle pattern with particular characteristics. The opening angles of the small circles are about 70° , and the direction of their axis is nearly parallel to the foliation. The preliminary studies both in the field and in the laboratory indicate that this kind of small circle may be formed due to intragranular glide of the (0001) $\langle 11\bar{2}0 \rangle$ system under axial extension.

9717
CSO: 4009/25

AUTHOR: ZHU Guang [3608 0342]

ORG: None

TITLE: "New Achievement in Comprehensive Utilization of Complex Sulfide Ores--
Semi-industrial Experiment With Qibaoshan Pyrite Ores Proved Successful"

SOURCE: Changsha ZHONGNAN KUANGYE XUEYUAN XUEBAO [JOURNAL OF CENTRAL SOUTH -
INSTITUTE OF MINING AND METALLURGY] in Chinese No 3, Sep 82 p 96

ABSTRACT: Commissioned by Hunan Provincial Bureau of Petrochemical Industry, the institute proceeded with experimental studies of the typical complex sulfide ores of Qibaoshan and succeeded in, finally, proposing the semi-industrial cyanfree ore dressing technique. The Qibaoshan deposit is mainly pyrite ores containing some copper and zinc. Having undergone many thermal fluid mineralization actions and several secondary reconstruction processes of oxidization leaching, its geological condition is extremely complex. The ores contain a large quantity of soluble salts, the dressing water is acid, and it is very difficult to separate the copper and zinc. These types of ores are rare in China or foreign countries. Since 1974, the Ore Dressing Teaching and Research Office of the Department of Mines of the institute has tested many dressing schemes for the ores before proposing the cyanfree technique. On 5-8 Jul 82, a Conference of delegates representing 28 departments and universities approved the pilot scheme and regarded it as comparable with the techniques used in the Zuoazuoliang [transliteration] Dressing Plant of Japan and the Quemont Ore Dressing Plant of Canada. The Ministry of Chemical Engineering has been requested to certify the technique. It has been adopted as the technical basis for constructing the Qibaoshan Pyrite Mine of Hunan Province.

6248

CSO: 4009/25

AUTHOR: LI Feng [7812 7364]

ORG: None

TITLE: "The 6th National Laser Technology Report Conference Held in Tunqi City of Anhui Province"

SOURCE: Shanghai GUANGXUE XUEBAO [ACTA OPTICA SINICA] in Chinese No 5, Sep 82
pp 430, 472

ABSTRACT: The 6th National Laser Technology Report Conference, sponsored jointly by China Society of Optics and China Society of Electronics was held on 6-9 May 82 in Tunqi City of Anhui. It was attended by close to 300 delegates representing more than 100 organizations all over the country. More than 460 papers were received and 130 of these were chosen for reporting in 4 separate special subject meetings; 27 of these papers dealt with laser physics, 51 with laser devices, 30 with laser components and single component technology, and 22 with laser applications and other aspects. Special subject discussion meetings were organized on laser applications, free-electron laser, laser biochemical effect, x-ray laser device, laser spectroscopy, etc; the delegates were free to select among these to contribute their own ideas. In response to a special request by some delegates, a discussion meeting on the special subject of laser safety protection was organized on the spot, and Doctor GUAN Chongwen [7070 1504 2429] of Shanghai Optical Instrument Center was invited to chair the discussion. Following negotiations between the Laser Specialty Committee and related organizations, it was resolved that Chengdu College of Telecommunications Engineering should prepare for the 7th National Laser Technology Report Conference to be held in 1984.

AUTHOR: GUANG Neng [1684 5174]

ORG: None

TITLE: "Joint Conference of the Standing Committee (Expanded) of China Society of Optics, and the Optics and Applied Optics Group of the National Science Committee"

SOURCE: Shanghai GUANGXUE XUEBAO [ACTA OPTICA SINICA] in Chinese No 5, Sep 82
pp 444, 457

ABSTRACT: China Society of Optics and the Optics and Applied Optics Groups of the National [State's] Science Committee held a joint conference in Tunqi City of Anhui Province on 14-18 May 82. It was attended by 23 members of the Standing Committee of the society, 19 members of the optics group of the committee, 10 chairmen and deputy chairmen of various specialty committees. Two reports on the development of optics in China and a survey of laser applications were delivered. In the 3 years since the establishment of the society and the group, close to 1000 technicians and scientists of optics have participated in various symposiums. On the basis of these scientific exchanges, the Optics Information Group and the Optics Information Special Committee have conducted surveys of major experiences and characteristics of optics development in major industrially developed countries and wrote a report concerning opinions with respect to the development of optics in China. The establishment of specialty committees on color optics, high speed photography, photons, and optical films was officially acknowledged. It was resolved that the second conference of representatives of China Society of Optics will be held in late 83 in Beijing and about 400 persons should attend.

6168

CSO: 4009/14

Physics

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SONG Yuxia [1345 3768 7209]

ORG: All of the Institute of High Energy Physics, Chinese Academy of Sciences

TITLE: "An Experimental Study of the Superconducting Solenoid Magnet"

SOURCE: Beijing DIWEN WULI [ACTA PHYSICA TEMPERATURAE HUMILIS SINICA] in Chinese No 3, 1982 pp 243-248

TEXT OF ENGLISH ABSTRACT: An experimental study of the distribution of losses within a superconducting solenoid magnet and the effects of wire movement and shorts in the magnet on the critical current has been made. The experimental results obtained show that:

- (1) The losses of the inside coils in a magnet are smaller than those of the outside ones. The sum of losses of the inside and the outside coils is equal to that of the whole magnet.
- (2) The distortions in the shape of the hysteresis loop of a magnet are caused by either wire movement or shorts in the magnet. However, the two types of distortions are different from each other.
- (3) Both wire movement and shorts will possibly lead to a decrease in the critical current of the magnet.
- (4) The loss of a magnet due to the shorts within will possibly be twice, several times, or even more than that of the magnet without shorts.

AUTHOR: LING Dachun [5677 6671 2504]

ORG: Institute of High Energy Physics, Chinese Academy of Sciences

TITLE: "Simulating Calculations of the Current Lead Cooled Down by Gas"

SOURCE: Beijing DIWEN WULI [ACTA PHYSICA TEMPERATURAE HUMILIS SINICA] in Chinese No 3, 1982 pp 249-256

TEXT OF ENGLISH ABSTRACT: This paper introduces the method of how to simulate calculations for the current lead cooled down by helium gas, yielding some profitable results. They include the minimum cooling power of liquid helium required per ampere for the current lead, the temperature distribution on it with various $\rho(0)$, the optimum condition between the current I , the dimensions of the lead L/S and the residual resistance ratio $\rho(0)$, etc. The choice of the best kind of copper materials for the current lead in DC or AC superconducting magnets is also discussed. These results can profitably be applied to designing the current lead.

9717

CSO: 4009/19

Solid Mechanics

AUTHOR: YU Maohong [0205 5399 1347]
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WU Guanghao [2976 1639 5714]
SHAO Yasheng [6730 0068 5116]
HUANG Deshu [7806 1795 2579]

ORG: YU, LE and WU all of Xi'an Jiaotong University; SHAO and HUANG both of the Shanghai Electrical Machinery Manufacturing Works

TITLE: "Magnetic Vibration of Large Turbo-generator Stators and Its Suppression"

SOURCE: Wuhan GUTI LIXUE XUEBAO [ACTA MECHANICA SOLIDA SINICA] in Chinese No 3, 1982 pp 425-436

TEXT OF ENGLISH ABSTRACT: The magnetic vibration problems of a large turbo-generator and the methods used for the suppression of severe vibration have been described. Using the energy method, the finite element method and the structural model analysis, we have systematically analyzed the natural frequency, mode shapes, dynamic response of generator stator frames and all the factors that affect the vibration characteristics of generator stators, such as the stiffening ribs, strengthening in the corner of the frame, the welding length, the stiffness of the foundation and the vibration-suppressor band.

[Continuation of GUTI LIXUE XUEBAO No 3, 1982 pp 425-436]

The results of the study have been examined in a power station. The largest vibrations of the generator stator frames were found to have been reduced from 140-260 μm to 10-30 μm in one set and from 90 μm to 10 μm in another.

9717

CSO: 4009/21

END